CROP TALK

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Fall Pasture Management Following a Dry Summer

by Jack Kyle, Grazier Specialist, OMAFRA

The summer of 2012 has been one of the driest on record in Ontario and pastures are showing the impact. There are a number of steps to consider this fall and next spring to bring pastures back into top form.

Reduce Tramping

Allowing pasture to re-grow and recover this fall will result in a more vigorous stand next spring. Sacrifice a small pasture and feed in this area rather than letting the livestock roam across the entire pasture. Once moisture levels return and the grass starts to re-grow, give pastures an opportunity to develop before allowing livestock to graze. The plants need time to grow new root and leaf material and re-build root reserves to replace what was damaged during the dry weather.

If feeding green-chopped forage, be aware that nitrate levels may be high in drought-stressed corn or sorghum that could be deadly to livestock. Refer to "Potential Nitrate Poisoning and Silo Gas When Using Corn Damaged by Dry Weather for Silage, Green Chop or Grazing"

There are several other ideas that will provide forage for your livestock during the later part of the grazing season. Crop residues can provide excellent quality forage. Don't over look cereal stubble. There will be some volunteer grain in these fields that can be grazed. The fields could also be seeded with oats or barley immediately after the cereal harvest. If red clover was broadcast in the spring for a plowdown cover crop, consider grazing this growth. This will provide feed for livestock while the soil nutrients will remain in

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the field. Corn stalks can provide a great deal of forage after the grain has been harvested. In many situations, electric fence can be quickly erected at less cost than harvesting and hauling the feed to the livestock.

Annual Forage
If sufficient growing season remains and soil moisture is adequate, consider an annual forage. Fall rye grows well into the fall, and greens up early in the spring. Depending on the length of growing season remaining, oats, rape or stubble turnips might be considered. These crops are best sown in early- to mid-August.

Fertilizer
Soil fertility plays a major role in fall pasture growth, the over wintering of the plants, and the following spring's production. Fall is a good time of year to help a pasture that is struggling from being overgrazed, stressed by poor growing conditions, or a combination of both. Nitrogen is the key, but phosphorous and potash are important additions to getting pastures back into productivity.
Nitrogen fertilizer applied to a grass-based pasture during the early fall will encourage growth and help to rejuvenate the grass. Apply 55 - 75 kg/ha (50 - 70 lbs/ac) of actual nitrogen. Expect 20 to 30 units of dry matter production from each unit of nitrogen applied. Fall application will increase the sugar levels in the grasses, and promote more vigorous growth next spring.

To establish new legumes in a pasture, the best method may be to apply phosphorous and potash this fall, and then frost seed late in the winter or early next spring with clover or trefoil. The legume seedlings will need a reasonable level of fertility to get properly established, and the weakened grasses will be less competitive.

Explaining Poor Weed Control

by Mike Cowbrough, Weed Management Program Lead, OMAFRA

The classic explanation of "too hot, too cold, too wet, too dry, too bad" surprisingly doesn't cover all of the possible factors for why a herbicide doesn't deliver 100% satisfaction. A recent field walk illustrated why physical obstruction and weed density are two factors that are every bit as influential as environmental conditions when it comes to herbicide performance.

Scenario # 1 (Two minutes for obstruction)

Green pigweed is at the 2-4 leaf stage in a soybean crop just approaching the 1st trifoliate stage. The field is sprayed with Reflex + Turbcharge. Control at first glance is excellent but upon closer inspection some green leaf tissue is noticed near a corn husk. When the corn husk is lifted it reveals a number of nicely shielded and therefore unharmed pigweed seedlings.

Figure 1: Upon first glance control of pigweed appears perfect. A closer look reveals a green cotyledon poking through a corn husk.

Scenario # 2, Density matters

In a demonstration plot, velvetleaf was at an incredibly high population of over 400 plants/m2. The majority of herbicides failed to deliver adequate control. The image below illustrates how an otherwise effective contact herbicide can look less then stellar because the density of weeds are so high that they end up obstructing spray droplets from penetrating to the plants below. This is yet another reasons why minimizing weed seed return is important for successful weed management.

Figure 2: Removing the corn husk reveals 4 green Pigweed plants that were nicely protected during the application of reflex and will survive.

(Continued from page 2)

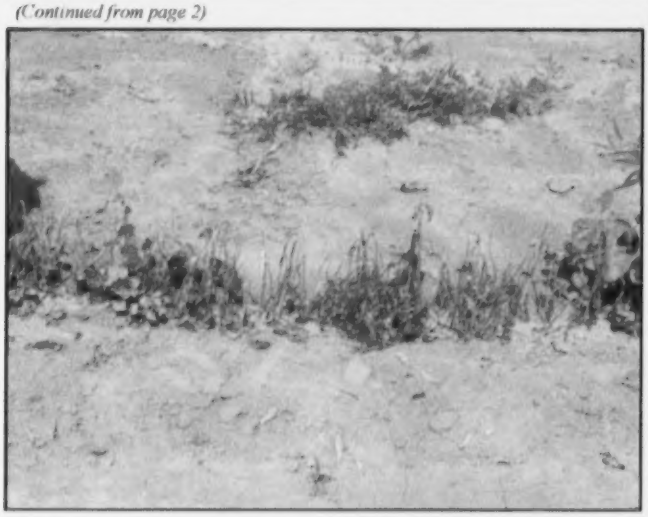

Figure 3: A high weed density creates a "shading" effect where plants will be protected from receiving spray droplets. This results in some plants not being controlled particularly with contact herbicides.

Scenario#2 Density Matters

Figure 4: An intensely heavy population of velvetleaf left uncontrolled. When weed populations are this heavy it makes control with any herbicide challenging

How 10 cm (4 Inches) Can Get You 50% Off Your Herbicide Bill?

by Mike Cowbrough, Weed Management Program Lead, OMAFRA

Not surprisingly, smaller weeds are easier to control. The assumption when using a glyphosate based herbicide is that when weeds get bigger, no worries, just add more glyphosate. A recent research trial conducted by Dr. Peter Sikkema (Ridgetown Campus, University of Guelph) would suggest otherwise.

Take a look at figure 1, Glyphosate tolerant corn with annual weeds at 10 cm (4") in height was sprayed with a product rate equivalent to 750 mL/ac of Roundup Original (360 g/L). To steal a line from Larry David, "pretty, pretty good"!

Figure 1:. control of annual weeds with 750 mL/ac of glyphosate (360 g/L) when sprayed to 10 cm tall weeds

However, when we allow those same annual weeds to get another 10 cm (4") tall, we can double the rate, but with less than stellar results.

Figure 2:. annual weed control with glyphosate (360 g/L) at 1.5 L/ac applied to 20 cm (8") tall weeds

Bottom line: spraying annual weeds with glyphosate when they are small ensures better control, requires less herbicide and saves money.

Spider Mites Reduced Soybean Yields in 2012

by Horst Bohner, Soybean Specialist &
Tom Cowan, Field Crop Entomologist, OMAFRA

Two-spotted spider mites were a problem across much of the province in 2012, causing significant yield reductions in some soybean fields. With extremely dry areas the worst hit, 2012 was the most widespread and severe mite infestation experienced in recent memory.

Damage
Spider mites feed through stylet-like mouthparts on the underside of leaves. Each feeding site causes a stipple. Severe stippling causes yellowing, curling and bronzing of the leaves. (Figures 1, 2 & 3). Eventually, the leaf will dry up and fall off. (Figure 4) Close examination will show fine webbing on lower surfaces of the foliage. Adults, nymphs and larvae all feed on the plant and contribute to the overall damage.

Damage is more severe in hot, dry weather and usually occurs in mid-July (after winter wheat harvest). Spider mites usually start at the edges of the field, but windy days can carry them in from other sites, with pockets starting up deeper into the field. In 2012 mite infestations often quickly spread across entire fields, creating visual "hot spots". From the road, these pockets may be confused with drought stress. High-risk factors include neighbouring winter wheat stubble, hay fields, ditch banks and fencerows that harbour over-wintering mites. No-till fields of soybeans following winter wheat underseeded to red clover are also at higher risk, as over wintering mite populations may be present. In 2012, some counties had such high numbers that essentially all fields were impacted to some extent. Heavy damage could be found along field edges and in hot spots throughout fields.

Description and Life Cycle
The adult spider mite is barely visible to the naked eye, only 0.5 - 1.0 mm (1/25th inch.) in length. They are rounded, eight-legged and yellowish-brown with two dark spots on the sides of the abdomen. (Figure 5) Adult females produce eggs that, depending on temperature, can hatch in 4 - 5 days, and larval spider mites emerge. The larvae are very small and look similar to the adults except that they only have 6 legs instead of 8. The nymphs then go through 2 larval stages growing larger each time, acquire an extra set of legs and begin to develop the two dark spots on either side of their abdomen. As day lengths shorten and food supplies run low, over-wintering females begin to turn an orange-red colour. In very hot years, the entire life cycle can be completed in just over a week.

Spider mites generally over-winter as adult females in sheltered areas, such as plant debris and field margins. Harvested wheat fields underseeded to red clover are another important over-wintering site. In late-April, as the weather turns warm, mites become active in search of food and egg-laying sites. Spider mites disperse by crawling, so infestations tend to spread slowly from field edges (Figure 6). Spider mite females can reproduce without mating. A single unmated female can be the start of a new colony. Non-mated female mites will mass at the top of plants and spin webs that serve as "balloons" that allow strong winds to pick them up and carry them off to another site. Under hot, dry, windy conditions, infestations can spread very quickly. There can be up to seven generations per year, with generations overlapping.

Frequent rain and cool weather reduce mite populations in soybeans by facilitating the development of fungi that infect the spider mites. Cooler weather also helps slows down the reproductive cycle. A single rain event followed by hot weather will not do much to reduce mite numbers. Continued rain and cool weather are needed for a few days to help the fungi gain a foot-hold in the mite population.

Scouting Technique
Scout fields weekly, starting the first week of July. Infestations tend to occur shortly after wheat harvest, and when municipalities mow roadsides. Infestations usually move in from the edges of fields. Look for tiny white stipples on the upper surface of leaves in the mid-canopy. Pull these leaves from the plant and shake them onto a white piece of paper to see the actual mites moving around. To the naked eye, they look like small pieces of dirt moving on the white paper. A 10X hand lens is required to actually see the mites. If you suspect that rain and cooler weather has helped to reduce mite populations, check to see if mites are still alive on the leaves. Using a hand lens, gently disturb the mites. If adults and nymphs do not move, they are dead.

Action Threshold
Control is necessary if there are four or more mites per leaflet, or one severely damaged leaf per plant prior to pod fill.

Management Strategies

- An insecticide may be necessary when mite numbers exceed the action threshold. Only dimethoate is currently registered for use on soybeans. Under severe infestations, 80 - 90% control can be expected, but this may still leave a tremendous number of mites. Control was disappointing in some fields in 2012. More research is needed to assess the efficacy of other insecticide products and get them registered on soybeans.
- Spraying the edges of a field helps prevent the early infestation spread of mites to other parts of the field and may reduce the need for further treatment. This strategy works most years, but in 2012 populations were so severe that it was often insufficient.
- If rain is in the forecast, delay spraying. Prolonged wetness and colder temperatures will usually reduce the number of mites to insignificant levels.
- Natural enemies of spider mites, including ladybird beetles, thrips and predaceous mites, help keep mites at low levels when conditions are favourable. Cool temperatures and high humidity promotes the development of a pathogen that can also provide natural control.

Figure 1: Bronzing of underside of soybean leaf. High population of spider mites present

Figure 2: Stippling of soybean leaf from spider mite feeding

Figure 3: Curling of soybean leaf from spider mite feeding

Figure 4: Defoliation from heavy spider mite feeding

Figure 5: Spider mite life stages: Adult (left) nymph (centre) and egg (right)

Figure 6: Heavy damage to field edge from spider mite feeding

Grazing Corn Stover

by Jack Kyle, Grazier Specialist, OMAFRA

Corn stover can provide a viable, low cost feed for wintering mid-gestation beef cows.

The digestible energy in a crop of corn is half in the grain and half in the stover. After the grain is harvested, half the feed energy is still in the field in the leaves, husks and stalks. The cows also can glean the kernels and small cobs that passed through the combine.

Grazing corn stover after combining is actually more efficient that trying to bale the corn stover. Cows are able to eat what is on the ground that a baler will miss. Baling corn stover also has its challenges and often creates extra wear on the baler. In many situations, temporary electric fence and watering facilities can be quickly erected at less cost than harvesting, storing and hauling the baled stover to the livestock.

Most corn stover fields can provide between 1 and 2 months of grazing per cow per acre (eg. 50 cows on 50 acres for 1-2 months). Cows should be monitored closely and body condition scores recorded so that any necessary supplementation can be provided when required.

Stover Digestibility

The feed value of the stalks will drop after the harvest date, so the earlier you can graze the better. The TDN value could initially be as high as 70%, but as the winter progresses this value will drop down into the 40% range. Part of this decline is due to the weathering of the leaves and stalks. The cows will eat the preferred leaves and grain they can find early in the grazing period, and leave the less digestible stalk material for later grazing.

Grain

Check the field for available grain - both kernels on the ground and small cobs missed by the combine. If there is a lot of available grain, it may be necessary to limit the access so that the cows don't over-load on grain. This can be achieved by using temporary electric fence to strip-graze the field, or by restricting the grazing time to a few hours during the day. The cows will tend to eat the grain first, then the husks and leaves, and lastly the stalks. Controlling the size of the area being grazed will also help to keep the energy level of the cows' diet more uniform.

Supplementation

Once the leaves and husks have been consumed, it may be necessary to supplement with good quality hay. Monitor the manure for any visible signs of grain. If no grain is present in the manure it is time to start supplementing with hay. After the grain is consumed, a 1,300 lbs cow will require about 6 lbs of good quality hay to meet her protein needs. Salt and mineral should be available free choice at all times. Water should be readily available. Under cool conditions, cows will consume about 10 gallons of water per head per day. Alternate sources of water may be required, such as hauling water or pumping. Clean fluffy snow can also be used as the water source.

Soil Conditions

If the ground is wet there will be some pugging and roughening of the soil surface. In a no-till cropping system, consider waiting until the ground is frozen or selecting the driest fields with a low clay content to graze. Any fall damage to soil structure will be at least partially rectified by the freeze-thaw action over the winter. Damage in the spring will have a more significant impact on the following crop. Graze the stalks during the fall and early winter and remove the cows from the field before spring thaw conditions start.

By managing the stover field as you would a pasture field - controlling the area being grazed and staying off when soil conditions are wet - a producer can have the best of both the feed and crop world.

Taking That Fall Cutting Of Alfalfa?

by Joel Bagg, Forage Specialist, OMAFRA

With reduced forage inventories, it will be very tempting to cut some alfalfa for haylage or baleage this fall. This difficult decision will need to weigh the immediate need for forage against the increased risk of alfalfa winterkill and reduced yields next spring. How do we evaluate these risks?

Alfalfa Stands Significantly Stressed In 2012

At the same time that our alfalfa stands have been stressed to the limit, we are going to ask them for more. Alfalfa has suffered significant stresses that go back to last fall and winter. Saturated soils in late fall, poor winter hardening, water ponding and ice sheeting all took their toll, as well as alfalfa crown and root diseases. As spring arrived early, we had multiple incidents of frost damage. A very dry April and May and alfalfa weevil significantly reduced first-cut yields. This was followed by exceptionally poor second-cut regrowth with little rain in June and July. Potato leafhopper has taken an incredible toll, especially in new seedings.

A major contributing factor to poor first-cut yields is always cutting alfalfa during the previous fall. With forage inventory shortfalls, it is understandable why many take that risk. However, we have been seeing more winterkill recently, even in areas where it is less common. Stressed, weakened stands are at a greater risk of continued decline and poor yield. Digging some alfalfa crowns and roots and doing an assessment for disease and plant health can help in making fall cutting and rotation decisions. Refer to *Alfalfa Stand Assessment* at www.omafra.gov.on.ca/english/crops/facts/info_alfalfa_stand00.htm.

Critical Fall Harvest Period

The Critical Fall Harvest Period for alfalfa is the 6-week rest period (450 Growing Degree Days, base 5°C) preceding the average date of killing frost, when alfalfa stops growing. Not cutting during this period allows alfalfa plants to re-grow and build up sufficient root reserves to survive the winter and grow more aggressively in the spring. When cut, early in the period, the alfalfa will use the existing root reserves for regrowth, "emptying the tank". Later in the period, the alfalfa uses photosynthesis to produce carbohydrates and stores them as root reserves, "refilling the tank". **Cutting in the middle, of the Critical Period (3rd or 4th week), when root reserves have been depleted and not yet replenished, is usually higher risk than cutting at either the beginning or end of the Period.**

The Critical Fall Harvest Period begins as early as August 10th in northern Ontario, August 25 - 30th for eastern and central Ontario, and September 4th in the southwest (Figure 1). However, it is difficult to predict when that killing frost will actually occur. The actual date seldom occurs on the average date, so the beginning of the Critical Fall Harvest Period is a guideline only.

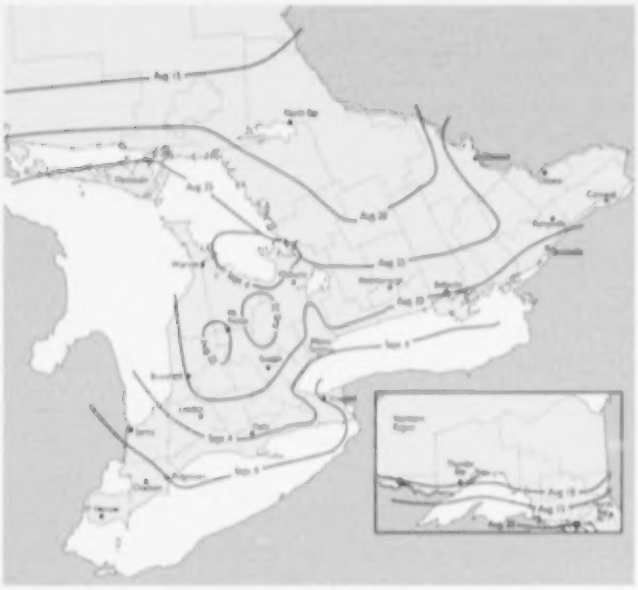

Figure 1. Start of the six-week alfalfa critical fall harvest period.

Even when winterkill does not occur, the extra yield harvested during the Critical Period is typically offset by reduced vigour and lower 1st-cut yields the following spring. It can sometimes be difficult to observe, but still be significant. Research shows that the yield sacrificed by not harvesting during the Critical Period is usually regained in first-cut yield the following year. We certainly saw this effect in the spring of 2012. The decision to cut in the fall should always be weighed against the immediate need for forage. If you do decide to cut, consider leaving some check strips that you can use for comparison next year.

Other Contributing Risk Factors
Fields with older stands, a history of winterkill, low potassium soil tests, low pH, poor drainage, or insect and disease pressure are at increased risk of winterkill and are poor candidates for fall harvesting. Fall harvest of new seedings are generally not recommended. Aggressive cutting schedules with cutting intervals of less than 30 days between cuts increases the risk of winterkill, while intervals over 40 days (allowing flowering), reduces the risk. We frequently see fields with disappointing first-cut yields where fourth-cut was taken the preceding fall.

Some areas of the province, such as the Ottawa Valley, have a higher historical risk of winterkill. In situations where forage inventories are adequate, increasing the risk of winterkill by fall cutting is far less acceptable.

Late Fall Cuttings At The End Of The Critical Fall Harvest Period

If fall harvest must be done, risk of winterkill can be reduced (but not eliminated) by cutting towards the end of alfalfa growth, close to a killing frost. Little root reserves will be depleted by regrowth, but lack of stubble to hold snow to insulate the alfalfa crowns against damage during cold weather may be a problem. Increasing cutting height to 15 cm (6 inches) of stubble will help. Try to limit late cuttings to fields that are otherwise lower risk – well drained, good fertility, healthy crowns and roots, etc. A killing frost occurs when temperatures reach about -4°C for several hours. After a killing frost, alfalfa feed value will quickly decline, as leaf loss occurs and rain leaches nutrients quickly.

Insufficient top growth and snow holding capacity can also contribute to alfalfa frost heaving. If winter ice sheeting occurs, stubble will protrude through allowing air to get under the ice. Cut alfalfa initiates regrowth from crown buds and axillary buds, not the cut end of the stem, so cutting higher does not reduce usage of root reserves. However, cutting higher does allow for holding more snow as insulation.

Smothering?
There is always the question of smothering in heavy forage stands that are left unharvested. Heavy stands of grasses or red clover can sometimes smother over the winter because the top growth forms a dense mat. In contrast, alfalfa loses most of its leaves as soon as there is a hard frost, and the remaining stems remain upright and seldom pose any risk of smothering.

More Information
For more information, refer to *Alfalfa Winterkill Risk Factors* Order No. 91-072 (www.omafra.gov.on.ca/english/crops/facts/91-072.htm).

The ULTIMATE Opportunity - Plant Wheat!

By Peter Johnson, Provincial Cereal Specialist, OMAFRA

Harvest is EARLY! The window of opportunity for early planted winter wheat has never been bigger or better. Early planted wheat means HIGH YIELD potential! What are the management "musts" to maximize the probability of high yields?

1. **Plant Wheat!**
   Prices are high, straw is in high demand, and the rotational benefits have never been more evident. Add to this the double crop opportunities of oats for forage after harvest, a place to spread manure, and more acres with the same equipment.
2. **Seeding Rates**
   Wheat planted early yields more, with less disease, at lower seeding rates. Talk about a win-win. Pay less for seed and get more yield. Do not seed more than 1.2 million seeds per acre if you are 10 days or more ahead of normal. If you are really early, 1.0 million seeds/ac is more than enough.

3. **Seed Treatments**
   Early planted wheat is at higher risk for Barley Yellow Dwarf Virus, which is spread by aphids. While this is rarely a problem in Ontario, extra early seeded wheat is at higher risk. Consider a seed applied insecticide (Cruiser, Stress Shield) to control aphids if planting is extremely early (or if European Chafer is an issue).

   Early planted wheat is also at higher risk for snow mould injury. The new seed treatment "Sedaxane" (included in Vibrance XL) is reported to have increased control of snow mould, so inclusion of this active may prove beneficial. Note that there is no Ontario data to date supporting this claim.

   Difenoconazole (included in Dividend XL RTA and Vibrance XL) is always a must on all winter wheat seed in Ontario, to control soil borne dwarf bunt.
4. **No Fall Nitrogen or Sulphur**!
   Our research in Ontario has found absolutely no benefit to fall nitrogen or suphur. Fall nitrogen is simply throwing money away, and causing an environmental risk. Fall sulphur (elemental or in MESZ) has added cost with no yield benefit. Fall phosphorus pays, fall N and S do not.
5. **Rotation**
   The best rotation? Wheat after peas, canola, and edible beans! It will be extremely tempting to plant wheat following silage corn, hay or pasture. Remember the risks.
   - **Fusarium** is at maximum risk after any type of corn, silage or grain. If you must plant after silage, plant a Moderately Resistant variety and plan to spray a fusarium fungicide.
   - **Take-All** risk in wheat increases significantly following grassy hay or pasture. Try not to plant too early, and seed place 50 lbs/ac of muriate of potash (0-0-60). The chloride in the potash will offer some Take-All suppression (40%).
6. **Basic Management Applies**
   You cannot have MEGA wheat yields if you don't do the basic things right!
   - seeding depth at a minimum of 2.5 cm (1 inch), but into moisture (unless over 7.5 cm or 3 inches),
   - seed placed starter fertilizer,
   - fall weed control,
   - tile drainage,
   - all those things that normally work still apply to early seeded wheat.
7. **PLANT WHEAT!** Wheat helps drought proof your rotation, spreads the workload, and offers excellent opportunities to control weeds that otherwise escape. And wheat makes money.

Cover Crop Questions and Answers

by Adam Hayes, Soil Management Specialist, OMAFRA

Cover crops are a hot topic these days. There is always the usual seedings of red clover in winter wheat in the spring and other cover crops after wheat harvest. Cover crops are increasingly being planted in many other situations. Interest is growing in interseeding cover crops into seed corn, silage corn and grain corn. Cover crops are also being seeded after silage corn, edible beans and early harvested soybeans.

There are many reasons to plant cover crops, including scavenging nitrogen from the soil or tying up nitrogen after a manure application. Cover crops can help suppress weeds, reduce nematode populations, improve soil structure and help open up compacted soil. Most importantly, cover crops help protect the soil from wind and water erosion.

Some answers to some common cover crop questions:

What is the difference between the named oilseed radish brands (such as Tillage Radish, Tilth Pro NitroRadish, GroundHog Radish) and common oilseed radish?

A "named variety" is a variety or selection that has been refined for certain characteristics. Most selections currently available are a diakon radish. The chief characteristics of these are a large root and delayed flowering. Common seed oilseed radish is often a mixture of seed varying characteristics.. Seed will vary from year to year giving a range of root size, from small to large.

How late can I seed a cover crop?
Seeding dates for cover crops vary by crop type and region of the province. Winter cereals can be seeded later than those killed by frost. Cover crop success will be high for crops planted up until the end of August. In many areas, the risk of frost killing the cover crop before it has enough growth increases up until the middle of September. After the middle of September in southern Ontario, it is usually not worth planting cover crops like oilseed radish.

Why did my cover crop have poor growth?
Cover crops that scavenge nitrogen, such as oilseed radish, oats, mustards and spring wheat, when planted after winter wheat may not do well. These cover crops require nitrogen for growth and there may not be a lot of nitrogen left after the wheat crop. They often end up competing with volunteer wheat for what little nitrogen there is.

What about termination of the cover crop?
Many of the common cover crops are killed by frost so there is no need to terminate them. There are a few cover crops that could provide some surprises. The first is annual ryegrass. The name is a bit misleading as many of these will survive the winter. Usually it is sprayed in the fall. If left until the spring, be aware that it can grow to 60 – 90 cm (2-

3 feet) in height during a warm wet spell in the spring. The others are oilseed radish, buckwheat and the mustards. If they are allowed to go to seed, they could become a weed problem for years to come. Of course the winter cereals will have to be killed in the fall or spring depending on the situation.

Go to http://www.mccc.msu.edu to find the Cover Crop Selector tool for information on planting, seeding dates and answers to many other questions. Think about cover crops as part of your cropping system, use the resources available to you and your chance of success will be much greater.

Double Cropping Fall Rye For Extra Forage

by Joel Bagg, Forage Specialist, OMAFRA

Fall rye can be used as an excellent emergency forage crop, by seeding after early-fall harvested crops and making haylage, or by grazing in the spring. Because it is typically harvested in southern Ontario in mid-May, there are opportunities to include it in "double crop" systems to fill the gap in years when forage supplies are short. Seed as early as possible in September, apply nitrogen in the spring, and time harvest for nutrient quality needs. Do not confuse cereal rye (*Secale cereale*) with ryegrass (*Lolium multiflorum or L. perenne*), which are totally different grass species with quite different characteristics.

Fall rye is best known as a cover crop that prevents erosion and gives good weed suppression. Rye is very cold tolerant, the hardiest and most disease resistant of the winter cereals. Fall rye has an extensive fibrous root system, can scavenge nitrogen very effectively, and utilizes early spring moisture to grow rapidly. Fall rye is faster growing and earlier maturing in the spring than the other winter cereals, including wheat, barley and triticale. This enables an earlier forage harvest and more "double crop" options.

Fall rye grows well on lighter and low pH soils, but does not do well on poorly drained, heavier soils. Forage rye is higher yielding, but not as palatable as winter wheat. Rye matures rapidly at the flag-leaf, boot and early-heading stages, with significant reductions in forage quality. This can create the challenge of a very narrow harvest window, particularly if there are rain delays.

Double Crop Options

Farmers looking for extra forage can plant fall rye following the harvest of many crops, particularly corn silage. Forage rye harvested in mid-May can be followed by a late-planted crop, such as soybeans, edible beans, or a warm-season annual forage crop such as sorghum. Winter wheat heads later than fall rye, about June 5th, making forage wheat harvest too late to be followed by corn or soybeans. Decreased moisture in the soil profile following forage rye harvest can potentially have a negative effect on the yield of the following crop. It is essential to completely kill the rye with glyphosate or tillage to minimize shading and competition for moisture.

Rye is sometimes noted for having an "alleopathic effect" that suppresses the germination and growth of weeds and other crops. With most of the rye residue removed, alleopathy is a low risk in most forage rye situations. The exception may be with no-till corn on heavier soil types.

Seeding

Fall rye is easy to establish and can be seeded from late-summer to late-fall. If harvest as silage the following May is planned, fall rye should be seeded in September, but later seedings can work on sandy soils. Early planting allows more time for tillering, higher forage yields, and slightly earlier forage harvest dates. Some growth going into winter is required for early spring growth and good yields. Seed is relatively inexpensive. Under good conditions, fall rye can be seeded at 110 kg/ha (100 lbs/ac), but the seeding rate can be increased up to 190 kg/ha (168 lbs/ac, 3 bu/ac) if the seed is broadcast rather than drilled, or if the seeding date is late.

Grazing

Fall rye is best used to provide early-spring grazing, but can also be grazed into late-fall. It is ready to graze early in the spring and growth is very rapid. To ensure that it does not get too mature, be prepared to move livestock frequently by strip grazing. Grazing rye on wet heavy clay soils in late-fall or early-spring is not recommended due to livestock "pugging" and compaction. If fall pasture is desired, fall rye should be seeded by August 15-30th.

Haylage

Fall rye can be made into good stored feed by making it into silage, either in tower, bunk, pile, bag silos, or as baleage. Fall rye cut at the desired stage is extremely difficult to dry sufficiently to be made into dry hay. Nitrogen applied at 55 – 80 kg/ha (50 – 70 lbs/ac) in the spring at green-up will stimulate tillering and increase forage yield.

The timing of cutting is critical. Quality, palatability, and intake drop very quickly at the heading stage (faster than other cereals) so the optimum harvest window is very narrow. It is recommended to target harvesting forage rye at the **flag-leaf** or **early-boot stage** for high nutrient quality. Early-boot generally occurs May 10th - 20th in southern Ontario. At this stage, a dry matter yield of 2 tonnes per acre or more is possible under good conditions.

There can be a very large range in forage quality with only a few days difference in harvest. At the early-boot stage (Zadok Stage 39 - ligule of the last leaf just visible), crude protein (CP) can approach up to 18% (depending on the amount of nitrogen applied), with Neutral Detergent Fibre (NDF) under 50%.

At the head-emerged stage (Zadok Stage 55), CP drops to

the 13 - 14% range, while NDF increases to over 60%. This will likely be adequate for beef cows, heifers, and dry cows, but will not be high producing dairy cow or sheep quality.

When rye is cut later, at the early-dough stage, the yield may approach 3 tonnes per acre, but the quality, palatability and intake will be much lower. Delaying forage rye harvest past the boot stage because of bad weather or competing field crop activities is not very forgiving.

Winter Triticale

Winter triticale, a cross between rye and wheat, has been suggested Tom Kilcer in New York State as being preferable in both forage yield and quality to either fall rye or winter wheat. His research indicates that winter triticale harvested at the flag-leaf stage (rather than boot-stage) can be very high quality feed for dairy cows. There is limited data evaluating the agronomics and nutrient quality of winter triticale in Ontario. Seed is difficult to source and more expensive than rye. Harvest of triticale will be slightly later than rye at the same stage of maturity, which may delay planting of the subsequent crop. While there is good potential for triticale as an Ontario forage crop, farmers interested in forage triticale may want to try rye as well and evaluate them in their own systems.

Summary

Seeding fall rye for forage can be an excellent, cheap source of additional feed. Seed as early as possible in September, apply nitrogen in the spring, and time harvest for nutrient quality needs. By double cropping, rye can fill the gap on years with short forage supplies, or be a regular part of the rotation.

Dry Weather Information

Farmers experiencing dry weather challenges can find feed and production alternatives at OMAFRA.

Visit ontario.ca/ag**weather**issues or contact the Agricultural Information Contact Centre at 1-877-424-1300 or email ag.info.omafra@ontario.ca.

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